

Union of South Africa. Meteorological office.

Code and instructions for weather messages by wireless telegraphy from ships at sea. Pretoria. 1923. 29 p. illus. 24 $\frac{1}{2}$ cm.

Young, Floyd D.

Carbon briquet orchard heaters. p. 44, 72. illus. 35 cm. [Exc.: California citograph. v. 9, no. 2, Dec., 1923.]

RECENT PAPERS BEARING ON METEOROLOGY AND SEISMOLOGY.

C. F. TALMAN, Meteorologist in Charge of Library.

The following titles have been selected from the contents of the periodicals and serials recently received in the Library of the Weather Bureau. The titles selected are of papers and other communications bearing on meteorology and cognate branches of science. This is not a complete index of all the journals from which it has been compiled. It shows only the articles that appear to the compiler likely to be of particular interest in connection with the work of the Weather Bureau.

Aeronautical digest. New York. v. 4. January, 1924.

The meteorological conditions to be met on a flight around the world. p. 15-18.

American meteorological society, Bulletin. Worcester, Mass. v. 4. December, 1923.

Alexander, George W. Intensive studies of local conditions as an aid to forecasting fire-weather. p. 169-170.

Bates, Carlos G. Evaporation as a simple index to weather conditions. p. 772-173. [Abstract.]

Flint, Howard R. How weather forecasting can aid in forest fire control. p. 165-166. [Abstract.]

Hofmann, J. V. Meteorological factors and forest fires. p. 166-168. [Abstract.]

Osborne, W. E., Jr. The application of relative humidity records to fire control. p. 168-169. [Abstract.]

Show, S. B. Lightning and forest fires in California. p. 164-165. [Abstract.]

Weidman, R. H. Relation of weather forecasts to the prediction of dangerous forest fire conditions. p. 170-172.

American society of civil engineers. Proceedings. New York. v. 50. January, 1924.

Marston, Frank A. The distribution of intense rainfall and some other factors in the design of storm-water drains. p. 19-46.

Annalen der Hydrographie und maritimen Meteorologie. Berlin 51. Jahrg, 1923.

Pollak, Leo Wenzel. Einige Veresserungen aerologischer Apparate und Hilfsmittel. p. 186-191. (H. 8.)

Koch, E. Über die Beziehung zwischen Gradient, Wind und Storm im Nordatlantischen Ozean. p. 201-215. (H. 9.)

Annales de la science agronomique. Paris. 40 année. Mars-avril 1923.

Chassant, Maurice, & Clarte, R. Une expérience sur la lutte contre les gelées blanches par les nuages artificiels. p. 88-91.

Archives des sciences physiques et naturelles. Genève. v. 5. Septembre-octobre 1923.

Dorno, C. Progrès en actinométrie. p. 424-425. [Abstract.]

Gassmann, Th. Production de précipités phosphorés dans les eaux de pluie, neige et glace naturelle: sa signification météorologique. p. 422-423. [Abstract.]

Gockel, A. L'effet électrique de la pulvérisation et la théorie de l'électricité orageuse. p. 434. [Abstract.]

Gockel, A. Mesures de radiation solaire à Fribourg. p. 423-424.

Gockel, A. Sur la théorie de l'électricité des orages de Sohncke. p. 424. [Abstract.]

Gruner, P. Un fort courant d'air ascendant. p. 452. [Abstract.]

Kreis, A. Méthode graphique de détermination de la profondeur d'un foyer sismique dans l'hypothèse d'une vitesse croissant linéairement avec la profondeur. p. 414-416. [Abstract.]

Lütschg, C. Précipitation et écoulement des eaux en haute montagne. p. 436-438.

Mörikofer, W. Dénombrements de poussières en Engadine. p. 421-422. [Abstract.]

Archives des sciences physiques et naturelles. Genève. v. 5. Septembre-octobre 1923—Continued.

Mörikofer, W. Observations et théorie du vent de la Maloja. p. 449-452.

Moreillon, M. Évaporation de l'eau à l'air libre à Montcherand. p. 420-421. [Abstract.]

Quervain, A. de, & Piccard, A. Le nouveau sismographe universel de 20 tonnes, système de Quervain-Piccard, de l'Observatoire sismologique fédéral à Zurich. p. 416-417. [Abstract.]

Arkiv för matematik, astronomi och fysik. Stockholm. Bd. 17. H. 3-4. 1922-1923.

Ångström, Anders. Note on the relation between time of sunshine and cloudiness in Stockholm 1908-1920. (no. 15.)

Lundblad, Ragnar. Till frågan om solstrålningens variabilitet. (no. 14.)

Association of American geographers. Annals. Albany, N. Y. v. 13. September, 1923.

Baker, O. E. The agriculture of the Great Plains region. p. 109-167. [Includes discussion of climate.]

Astrophysical journal. Chicago. v. 58. December, 1923.

Bongards, Hermann. On the cosmic origin of the radioactive substances in the atmosphere. p. 307-313.

Beiträge zur Physik der freien Atmosphäre. Leipzig. Bd. 11. H. 1. 1. April 1923.

Hoffman, Karl. Bericht über die in Ebeltoftshafen and Spitzbergen ($11^{\circ} 36' 15''$ E, $79^{\circ} 9' 14''$ N) in den Jahren 1913/14 durchgeföhrten luftelektrischen Messungen. p. 1-19.

Moltschanoff, P. Zur Frage über die Vergrößerung der Genauigkeit in der Untersuchung von Luftströmungen mit Hilfe von Pilot-Ballonen. p. 43-47.

Schumacher, C. Der Wind in der freien Atmosphäre und auf Säntis, Zugspitze und Sonnblick, p. 20-42.

British astronomical association. Journal. London. v. 34. October, 1923.

Maunder, A. S. D. The meteor and aurora observing sections and the upper atmosphere. p. 23-28.

Discovery. London. v. 4. December, 1923.

Shaw, J. J. Earthquakes. p. 312-315.

Electrical world. New York. v. 83. January 19, 1923.

Towne, H. M. Lightning-arrester grounds—1. Characteristics of pipe grounds—resistance of grounds—artificial treatment of soils—maintenance, installation and testing of grounds—ground connections for different service conditions. p. 131-135.

Engineering news-record. New York. v. 91. December 27, 1923.

Nawa, Mitsuo. Earthquake damage to Japanese government railways. p. 1047-1051.

Summers, R. E. J. Earthquake characteristics and building resistance. p. 1044-1047.

France. Académie des sciences. Comptes rendus. Paris. t. 177 1923.

Nordmann, Charles. La "turbulence" du vent et du vol des oiseaux voiliers. p. 944-947. (12 nov.)

Rothé, E. Principe d'une méthode de détermination précise de la propagation des ondes sismiques. p. 1050-1052. (19 nov.)

Beauverie, J. Sur les circonstances qui peuvent modifier l'effet de la "période critique" sur le rendement du blé. p. 1060-1061. (19 nov.)

Bellemé, Eugénie. Sur un essai de sondage optique de l'atmosphère effectué à l'Observatoire de Lyon. p. 1316-1319. (10 déc.)

Henry. Sur un actinomètre thermo-électrique enregistreur. p. 1323-1326. (10 déc.)

Franklin institute. Journal. Philadelphia, Pa. v. 197. January, 1924.

Loeb, Leonard B. The effect of variable electron mobilities on the formation of negative ions in air. p. 45-55.

Peek, F. W., jr. High-voltage phenomena. p. 1-44. [Discusses lightning.]

Geographical journal. London. v. 62. December, 1923.

Oedi, Robert. Cave meteorology. p. 471-472. [Abstract from Met. Zeit.]

Geographical review. New York. v. 14. January, 1924.

Jefferson, Mark. New rainfall maps of Brazil. p. 127-135.

Ward, Robert De C. A cruise with the international ice patrol. p. 50-61.

Geographische Zeitschrift. Leipzig. 29. Jahrg. 4. H. 1923.

Alt, Eugen. Die ungeordnete Bewegung der Luft und ihre Bedeutung für atmosphärische Probleme. p. 249-260.

Schrepfer, Hans. Das phänologische Jahr der deutschen Landschaften. p. 260-276.

- Marine observer. London. v. 1, 1924.*
- Smith, H. T. Biographical notes of some leaders of marine meteorology. 1. Admiral Sir Francis Beaufort, K. C. B. p. 2. (Jan.) 2. Henry Piddington. p. 18-19. (Feb.)
- Garnett, L. G. Investigation of the upper air p. 17-18. (Feb.)
- Smith, L. A. Brooke. Wireless and weather. An aid to navigation. p. 10-M. (Jan.)
- Meteorologia pratica. Montecassino. Anno 4. Luglio-agosto 1923.*
- Crestani, G. La meteorologia nella riorganizzazione dell'aeronautica. p. 182-184.
- Ferraiolo, Luigi. L'osservatorio di Taranto. p. 185-186.
- Loperfido, A. L'altitudine origine delle regioni sismiche. p. 171-176.
- Meteorological magazine. London. v. 58. December 1923.*
- The great earthquake in Japan. How the meteorologists fared. p. 247-259.
- Rankin, Angus. Telluric spectroscopy. p. 252-254.
- Meteorologische Zeitschrift. Braunschweig. Bd. 40. 1923.*
- Wagner, A. Luftdruckgradient und Windstärke über Mitteleuropa bis 16 km. Höhe. p. 289-297. (Okt.) p. 329-340. (Nov.)
- Dietzus, R. Das ultraviolette Ende des Sonnenspektrums als Folge der Absorptionswirkung des atmosphärischen Ozons nach Versuchen von Fabry und Buisson und von Fowler und Strutt. p. 297-301. (Okt.)
- Exner, F. M. Dr. Robert Dietzus. p. 305-306. (Okt.) [Obituary.]
- Fricke, H. Die tägliche Doppelschwingung der Luftdrucks. p. 311-312. (Okt.)
- Maurer, H. Homogene Niederschlagsreihen. p. 306-309. (Okt.)
- Wagner, A. Bemerkung zu W. Georgio: Die Luftströmung über Gebirgen. p. 309-311. (Okt.)
- Defant, A. C. J. Östman, Untersuchungen über die Stürme an der schwedischen Küste des Bottnischen Meerbusens. p. 347-349. (Nov.)
- Ficker, H. F. M. Exner, Über die Bildung von Windhosen und Zyklogen. p. 341-343. (Nov.)
- Heilmann, G. Hundert Jahre meteorologische Gesellschaften. p. 321-329. (Nov.)
- Knoche, Walter. Verteilung des Niederschlagsüberschusses bzw. Defizits in Chile. p. 343-345. (Nov.)
- Maurer, J. Die Abspiegelung der Sonnenaktivität in atmosphärisch-optischen Erscheinungen. p. 349-350. (Nov.)
- Simpson, G. C. Bar, Bary und absolute Atmosphäre. p. 340-341. (Nov.)
- Süring, R. Höhe der Monsunströmungen über Ost-Indien. p. 345-347. (Nov.)
- Nature. London. v. 112. 1923.*
- Bauer, Louis A. The relation between solar activity and atmospheric electricity. p. 686. (Nov. 10.)
- Lockyer, William J. S. An uncommon type of cloud. p. 725-726. (Nov. 17.) p. 793. (Dec. 1.)
- Simpson, G. C. Thunderstorms and globular lightning. p. 727-728. (Nov. 17.)
- Doodson, A. T. Meteorological perturbations of sea-level. p. 765-766. (Nov. 24.)
- Scott, E. Kilburn. Globular lightning. p. 760. (Nov. 24.)
- Whipple, F. J. W. Determination of the temperature of the upper atmosphere by meteor observations. p. 759. (Nov. 24.)
- Sewell, R. B. Seymour. The influence of barometric pressure on the specific gravity of the surface water in Indian seas. p. 789-790. (Dec. 1.)
- Armstrong, Henry E. Problems of hydron and water; the origin of electricity in thunderstorms. p. 827. (Dec. 8.)
- Brooks, C. E. P. Weather influences in the British Isles. p. 834-836. (Dec. 8.)
- The Royal Society anniversary meeting. p. 845-848. (Dec. 8.) [Includes personal sketches of G. I. Taylor (p. 847) and Sir Napier Shaw (p. 848).]
- Giblett, M. A. Upper air conditions after a line-squall. p. 863-864. (Dec. 15.)
- Owens, J. S. The London fogs of November 25-27, 1923. p. 862-863. (Dec. 15.)
- Evershed, J. An uncommon type of cloud. p. 901-902. (Dec. 22.)
- Lodge, Oliver. Hydron and water: thunderstorms and globe lightning. p. 898. (Dec. 22.)
- Reynolds, William C. Globular lightning. p. 903. (Dec. 22.)
- Kidson, Edward. Remarkable ascending currents at Melbourne. p. 938. (Dec. 29.)
- Nature. Paris. 51 année. 1923.*
- Le Père Elie Colin. suppl. p. 133-134. (3 nov.) [Obituary.]
- Le rayon vert—le bolide vert. suppl. p. 145-146. (10 nov.)
- Maurain, Ch. Les orages magnétiques. p. 322-326. (24 nov.)
- D., M. Le typhon de Hong-Kong. p. 367-368. (8 déc.)
- Baldit, Albert. Les chaleurs précoce dans ces dernières années. p. 391-396. (22 déc.)
- North American almanac. Chicago. 1924.*
- Bentley, W. A. Snow crystals. p. 52-54.
- Cone, A. Prestwich. Earthquakes and volcanoes. p. 100-106.
- Cox, Henry J. The seasons. p. 44-47.
- Öster. ingenieur- u. Architekten-Vereines. Zeitschrift. Wien. 75. Jahrg. 9, November 1923.*
- Topolansky, Moritz. Über Windbeobachtungen. p. 296-297.
- Petermanns Mitteilungen. Gotha. 68. Jahrg. 1922.
- Knoch, Karl. Die Herkunft der Winterregen in Nordindien. p. 5-6. (Jan.-Feb.)
- Köppen, Wladimir. Pflanzengemeinden und Klima in der Tundra. p. 6. (Jan.-Feb.)
- Spitaler, Rudolf. Klimatische Kontinentalität und Ozeanität. p. 113. (Juni.)
- Schmidt, Adolf. Die ablenkende Kraft der Erddrehung. p. 144-146. (Juli-Aug.)
- Lehmann, F. W. Paul. Stauungs, Zerreissungs- und Schmelzungsscheinungen auf dem Eis von Binnenwässern. p. 188-189. (Sept.)
- Ototzky, Paul. Grundwasser und meteorologische Faktoren. p. 205-208. (Okt.-Nov.)
- Arendt, Theodor. Die geographische Verbreitung des Hagels in Nord- und Mitteldeutschland. p. 241-244. (Dez.)
- Tams, Ernst. Vereinheitlichung der Abschätzung von Erdbebenintensitäten. p. 245-246. (Dez.)
- Philosophical magazine. London. v. 46. November, 1923.*
- Nisi, Hirata, & Porter, Alfred W. On eddies in air. p. 754-768.
- Popular astronomy. Northfield, Minn. v. 32. January, 1924.*
- Vanderlinde, H. L. On atmospheric absorption. p. 32-34.
- Science. New York. v. 59. January 4, 1924.*
- Lloyd, Francis E. Concerning exceptional hailstones. p. 17.
- Science et la vie. Paris. t. 24. Décembre 1923.*
- Lembach, Robert. La protection des appareils de T. S. F. contre la foudre. p. 485-486.
- Scientific American. New York. v. 129. December, 1923.*
- Kershaw, John B. C. The air we breathe. New types of apparatus for measuring the suspended dust in the atmosphere. p. 408.
- Società meteorologica italiana. Bollettino bimestrale. Torino. v. 41.*
- Le caratteristiche dell'atmosfera libera sulla Valle Padana. p. 95-97.
- Successful farming. Des Moines. v. 21. January, 1924.*
- Hopkins, E. N. How about the weather? p. 48; 53.
- Technique aéronautique. Paris. 14. année. 1923.*
- Huguenard, E., Magnan, A., & Planiol, A. Sur une méthode de mesure de la vitesse et de la direction instantanées du vent. p. 798-806. (15 nov.) p. 854-862. (15 déc.)
- Terrestrial magnetism and atmospheric electricity. Baltimore, Md. v. 28.*
- Gish, O. H. General description of the earth-current measuring system at the Watheroo magnetic observatory. p. 89-102.
- Mauchly, S. J. On the diurnal variation of the potential gradient of atmospheric electricity. p. 61-82.
- Tycos-Rochester. Rochester, N. Y. v. 14. January, 1924.*
- Bentley, Wilson A. Snow marvels. p. 17.
- Flora, S. D. Measuring the floods. p. 29-30.
- O'Connor, G. J. Moisture indoors and out. Information which may be passed on to advantage to the prospective user of humidifying equipment. p. 36-37.
- Palmer, A. H. The unpacific Pacific. p. 27-28.
- Rogers, Walter E. Trees in a glaze storm. p. 5-8.
- Talman, Charles Fitzhugh. Can we control the weather? p. 23-25. [Repr. from Outlook.]
- Winters, S. R. Ice formation fails to yield to coaxing influences of sun, drills, and steam shovels. p. 21-22.
- Winter, S. R. International exchange weather conditions by radio. p. 32-33.
- U. S. Air service. Washington, D. C. v. 9. January, 1924.*
- Meisinger, C. LeRoy. The thunderstorm and the aviator. p. 11-15.
- Wasserwirtschaft. Wien. 16. Jahrg. 1. Oktober 1923.*
- Topolansky, Moritz. Die Wasseroberfläche in Wien-Hohe Warte im Jahre 1921. p. 247-248.

- Wetter. Berlin. 40. Jahrgang. Juli/August/September 1923.
 Fischer, Rudolf. Die nassesten und trockensten Jahre, Jahreszeiten und Monate in Frankfurt a. Main seit 1836. p. 83-85.
 Malsch, W. Der Einfluss der Bewölkung auf den Beginn der Dämmerung. p. 92-93.
 Malsch, W. Die "örtlich" mögliche Sonnenscheindauer. p. 89-92.

- Wetter. Berlin. 40. Jahrgang. Juli/August/September 1913.—Continued.
 Molly. Sonnenringe gegenüber der Sonne. p. 93-94.
 Seilkopf, Heinrich. Über die Beeinflussung von Brieftaubenflügen durch das Wetter. p. 78-81.
 Topolansky, Moriz. Dr. Robert Dietzius. p. 81-83. [Obituary.]
 Topolansky, Moriz. Der Einzelwert. p. 87-89.

SOLAR OBSERVATIONS.

SOLAR AND SKY RADIATION MEASUREMENTS DURING DECEMBER, 1923.

By HERBERT H. KIMBALL, In Charge, Solar Radiation Investigations.

For a description of instruments and exposures and an account of the method of obtaining and reducing the measurements, the reader is referred to the REVIEW for April, 1920, 48:225, and a note in the REVIEW for November, 1922, 50:595.

From Table 1 it is seen that solar-radiation intensities averaged slightly above the normal values for December at all the stations.

Table 2 shows a slight deficiency in the total radiation received on a horizontal surface at all the stations.

For the year the deficiency was about 4.2 per cent at Washington and 1.7 per cent at Madison and Lincoln.

Skylight-polarization measurements obtained at Washington on two days give a mean of 64 per cent, with a maximum of 64.4 per cent on the 12th. At Madison a measurement on the 13th gave 72 per cent polarization. These are average values for the respective stations in December.

TABLE 1.—Solar radiation intensities during December, 1923.

[Gram-calories per minute per square centimeter of normal surface.]

Washington, D. C.

Date.	Sun's zenith distance.										Noon.
	8 a.m.	78.7°	75.7°	70.7°	60.0°	0.0°	60.0°	70.7°	75.7°	78.7°	
		75th mer. time.	Airmass.					P. M.			
e.	5.0	4.0	3.0	2.0	1.0	2.0	3.0	4.0	5.0	e.	
Dec. 7.	m.m.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	mm.	4.17
11.	3.99	0.96	1.08	1.15	1.34	1.50	1.18	1.03	0.92	3.30	
12.	4.57	0.96	1.08	1.15	1.34	1.50	1.18	1.03	0.92	3.30	
13.	3.81	1.02	1.12	1.24	1.19	1.22	1.07	0.92	0.70	2.92	
14.	3.30	0.96	1.08	1.15	1.34	1.50	1.18	1.03	0.92	3.30	
17.	3.63	0.96	1.08	1.15	1.34	1.50	1.18	1.03	0.92	3.30	
19.	4.17	0.90	0.54	1.15	1.27	1.46	1.10	0.95	0.83	3.63	
24.	3.81	0.96	1.08	1.15	1.34	1.50	1.18	1.03	0.92	3.30	
26.	2.49	0.91	1.04	1.17	1.38	1.50	1.17	1.01	0.93	2.49	
28.	7.04	0.92	0.93	1.04	1.25	1.42	1.15	0.95	0.82	3.17	
29.	3.00	0.82	0.93	1.04	1.25	1.42	1.03	0.90	0.80	2.74	
Means.		0.84	0.94	1.15	1.20	1.35	1.12	0.96	0.83	—	
Departures.		+0.06	+0.05	+0.10	+0.06	—	+0.10	+0.07	+0.06	—	

TABLE 1.—Solar radiation intensities during December, 1923—Con.

[Gram-calories per minute per square centimeter of normal surface.]

Madison, Wis.

Date.	Sun's zenith distance.										Noon.
	8 a.m.	78.7°	75.7°	70.7°	60.0°	0.0°	60.0°	70.7°	75.7°	78.7°	
		75th mer. time.	Airmass.					P. M.			
e.	5.0	4.0	3.0	2.0	1.0	2.0	3.0	4.0	5.0	e.	
Dec. 6.	mm.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	mm.	4.37
10.	3.00	0.92	1.06	1.23	1.42	1.28	1.03	0.88	0.73	3.18	
11.	3.30	0.96	1.08	1.24	1.42	1.28	1.03	0.88	0.73	2.49	
13.	2.06	0.96	1.08	1.24	1.42	1.28	1.03	0.88	0.73	1.45	
14.	1.78	0.96	1.08	1.24	1.42	1.28	1.03	0.88	0.73	3.30	
24.	3.45	0.96	1.08	1.24	1.42	1.28	1.03	0.88	0.73	3.81	
Means.	(0.93)	1.02	1.26	(1.42)	—	—	—	—	—	(1.26)	
Departures.	-0.03	-0.10	+0.04	—	—	—	—	—	—	-0.04	

Lincoln, Nebr.

Dec. 4.	3.15	—	—	—	—	—	—	—	—	1.22	1.05	0.95	3.81
5.	2.38	—	—	—	—	—	—	—	—	—	—	—	3.45
8.	4.75	—	—	—	—	—	—	—	—	—	—	—	4.17
10.	3.45	—	—	—	—	—	—	—	—	—	—	—	3.45
13.	1.98	1.07	1.22	1.36	1.44	1.36	1.03	0.88	0.73	—	1.34	—	2.26
14.	2.26	—	—	—	—	—	—	—	—	—	—	—	2.36
15.	3.81	—	—	—	—	—	—	—	—	—	—	—	4.57
17.	2.36	—	—	—	—	—	—	—	—	—	—	—	3.00
18.	3.45	—	—	—	—	—	—	—	—	—	—	—	4.37
Means.	(1.07)	(1.13)	1.26	1.29	—	—	—	—	—	—	1.28	(1.09)	1.01
Departures.	+0.14	+0.08	+0.03	-0.07	—	—	—	—	—	—	+0.03	+0.02	+0.06

¹ Extrapolated.

TABLE 2.—Solar and sky radiation received on a horizontal surface.

Week beginning.	Average daily radiation.					Average daily departure for the week.			Excess or deficiency since first of year.		
	Chicago.	Washington.	Madison.	Lincoln.	Washington.	Madison.	Lincoln.	Washington.	Madison.	Lincoln.	
Dec. 3..	cal. 61	cal. 142	cal. 95	cal. 194	cal. -14	cal. -28	cal. +15	cal. -5,120	cal. -1,639	cal. -2,077	
10..	110	173	146	194	+21	+23	+17	-4,970	-1,477	-1,955	
17..	63	121	78	131	-29	-47	-45	-5,175	-1,309	-2,269	
24..	71	139	102	164	-13	-30	-15	-5,278	-2,045	-2,386	

² For 8 days.